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ABSTRACT

The purpose of this study was to see if a social learning method for training verbal social skills might influence the social effectiveness of third grade children with low peer acceptance. Children were trained in three verbal skills: asking questions of peers; leading peers (e.g., offering useful suggestions or directions); and, offering supportive statements to peers. In addition to being informed about specific social skills, children were taught how to perform these behaviors skillfully and effectively. Guided rehearsal was employed to help children translate the instructed skill concepts into behavior while receiving guidance and feedback from the instructor. Children's use of the trained social skills in peer group situations was encouraged. Children were also trained to self-evaluate the consequences of their skill performances. Three experimental conditions were employed to determine the effects of the training procedure on low-accepted children's social behaviors and peer status: verbal skills training, attention control, and non-treatment control. Change in children's social effectiveness was evaluated in terms of behavioral performance and peer acceptance. Observational and sociometric measures were administered upon completion of the experimental procedures and 4 weeks later. Among the results, the training procedure significantly increased the percentage of time children engaged in questioning and leading peers. Improvement was still observable after 4 weeks. (Author/RH)

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Social Skills and Peer Acceptance:

Effects of a Social Learning Method for Training Verbal Social Skills

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A paper presented at the biennial meeting of the Society for Research in Child Development, San Francisco, March, 1979.

Some children remain without friends or have minimal contacts with peers throughout their school years. The consequences of peer isolation or rejection may be severe such as dropping out of school, juvenile delinquency, and mental health problems in later life (Asher, Oden, & Gottman, 1976). Research is needed to develop effective training methods to enhance children's social skills for building and maintaining positive peer relationships.

In the present research, a social learning theory of behavior change (Bandura, 1972; 1977) provided the framework for constructing a training procedure designed to enhance children's verbal social skills. This explanation of behavior change can be summarized as follows: First, a learner forms a conception or cognitive representation of behavior(s). These symbolic representations are inferred from informative experiences such as demonstrations or verbal instructions. On subsequent occasions, these concepts serve as patterns or "representational guides" for performance. Motivation to enact or operate on a conceptual representation may arise from experiencing favorable consequences for the behavior, or by perceiving a discrepancy between the newly conceived behaviors and current levels of performance. Finally, a learner's concepts and performance may be modified as a result of performance outcomes.

These principles of behavior change, as represented by social learning theory, were translated into three specific training components: instruction, rehearsal, and feedback. For example, informative components (e.g., verbal or modeled instruction) may be employed to influence the learner's conceptions of how social behaviors are performed. Rehearsal serves to strengthen and stabilize the learner's conceptualizations or develop overt performance of the behaviors. Feedback fosters adjustment or modification of both the conceptualization and performance of social behavior.

Empirical support for this theoretical framework is provided by previous research with adults and children. As Bornstein, Bellack, and Hersen (1977) have summarized, recent social skill training research with adults indicates that the critical components leading to behavior change include instruction, rehearsal, and feedback. More importantly, interventions based on a social learning model have effectively trained a variety of social skills with children including: friendship-making skills (Oden & Asher, 1977); helpful skills (Staub, 1971); assertive skills (Bornstein et al., 1977); and reinforcing skills (Cooke & Apolloni, 1976).

The purpose of the present investigation was to examine the effects of a social learning method for training verbal social skills on low-accepted children's social effectiveness. Three verbal skills were trained: asking questions of peers; leading peers (i.e., offering useful suggestions or directions); and, offering supportive statements to peers. Previous research indicates that these skills are correlated with peer acceptance or valued by children in social situations with agemates (e.g., White & Watt, 1973; Oden & Asher, 1977; Ladd & Oden, in press).

In terms of methodology, the present intervention represents a refinement and extension of the coaching procedure employed by Oden and Asher (1977). Like the Oden and Asher procedure, verbal instructions were employed as informative components to help children acquire and refine response information (i.e., skill concepts, specific behavioral referents). In light of work by Marlatt (1972), it was reasoned that the provision of general social principles or concepts would enable children to deduce exemplary social behaviors for use in a variety of social situations. A second parallel to the Oden and Asher procedure was the use of verbal rehearsal in conjunction with the instruction of social skill concepts. Verbal rehearsal was utilized to stabilize and

strengthen the instructed concepts as well as to encourage children to deduce and retain specific behavioral referents (e.g., see Bandura, Grusec, & Menlove, 1969; Coates & Hartup, 1969; Marlatt, 1972).

In contrast, the present training procedure differed from that employed by Oden and Asher in two major ways: (1) children participated in both guided and self-directed rehearsal of the trained social skills; and (2) children were trained to "self-evaluate" their skill performance in terms of observed behaviors and peers' responses. These components correspond to social learning principles and were expected to increase the intervention's effectiveness. For example, in addition to informing children about specific social skills, an important objective in the present research was to teach children how to perform these behaviors skillfully and effectively. Guided rehearsal was employed to help children translate the instructed skill concepts into behavior while receiving guidance and feedback from the instructor. A second goal was to promote children's use of the trained social skills in peer group situations. Self-directed rehearsal provided children with the opportunity to independently initiate each skill and experience peer's responses in appropriate setting conditions. Previous research by Bandura and colleagues (e.g., Bandura, Jeffery, & Gajdos, 1975) provides preliminary support for training sequences which include guided rehearsal followed by self-directed rehearsal. Finally, a third objective was to help children perceive the trained social skills in an instrumental manner, that is, as a means of achieving beneficial outcomes for themselves and others. Children were trained to "self-evaluate" the consequences of newly trained social skills in terms of peer's responses.

In the context of social learning theory, response consequences are conceived of as "an unarticulated way of informing performers what they must do

to gain beneficial outcomes and avoid punishing ones" (Bandura, 1977). This process is viewed as a special case of observational learning in which the learner infers concepts of successful behaviors by observing the outcomes of performance as opposed to the behavior of another person. As implemented, it was reasoned that self-evaluation would encourage children to consider the effects of the trained social skills on peer behavior and teach children to adjust or modify their social skills in light of peer's responses or various constraints in the social environment (e.g., norms and conventions for social behavior). It was expected that these components would enhance and maintain children's social effectiveness in peer group situations.

Three experimental conditions were employed to determine the effects of this training procedure on low-accepted children's social behaviors and peer status: verbal skills training, attention control, and non-treatment control. Children with low peer acceptance and low levels of the targeted social skills were randomly assigned to one of the three experimental conditions. Children assigned to the training condition participated in eight training sessions conducted on alternating school days. The attention control condition was employed to examine the effects of experimenter attention and "peer paring." Children in this group participated in eight sessions in which a similar amount of experimenter attention and interactive experience with peers was provided. Children assigned to the non-treatment control condition did not receive any form of intervention and served as a comparison group for judging the relative efficacy of the other two experimental conditions.

Change in children's social effectiveness was evaluated in terms of behavioral performance and peer acceptance. Observational and sociometric measures were administered upon completion of the experimental procedures and again 4 weeks later to assess whether or not the trained skills had been enhanced and maintained and to determine if behavior change had resulted in

greater peer acceptance. To date, no investigator has trained specific verbal skills with children who lack both social skills and peer acceptance and then tested for posttraining increases on both criteria. In terms of behavioral change, it was expected that the training procedure would significantly increase the percent of time low-accepted children engaged in the trained social skills among peers and would enable children to maintain these gains. Change in the target social skills was not anticipated for children in both control groups. Based on pilot research, it was also expected that children in the verbal skills training and attention control groups would manifest gains in untrained social behaviors. Furthermore, it was expected that gains in trained or untrained social behaviors would be accompanied by a decrease in the amount of time spent in non-social behavior. It was also hypothesized that the trained social skills play an important role in the acquisition and maintenance of peer acceptance, and that children in the verbal skill training condition would achieve significantly higher sociometric ratings from classmates. Based on pilot research, it was expected that the trained children would obtain the greatest gains in sociometric status at followup. Because it was expected that social interaction would be facilitated by peer pairing and experimenter attention, an increase in sociometric status was also expected for the attention control group. However, in light of previous research on peer pairing (e.g., Chennault, 1967; Rucker & Vincenzo, 1970; Lilly, 1974), it was expected that possible sociometric gains achieved by children in the attention control condition would not be maintained. Children in the non-treatment control group were not expected to exhibit behavior change, and as a result, were not expected to evidence change in sociometric standing.

Method

Pretraining Assessment and Selection of Subjects

A sociometric scale was administered in six third grade classrooms in three schools to identify children with low peer acceptance in each classroom. A mean sociometric rating was computed for each child based upon scores received from all classmates. The distribution of average sociometric ratings received by children in each classroom was rank ordered and partitioned into thirds (i.e., high, medium, and low). Children ranked in the lowest third of this distribution were then observed to determine the percent of time they engaged in targeted social skills. The percent of time observed or sampled which each child employed each targeted social skill was then averaged and rank ordered. On the basis of these data, the three lowest ranked males and the three lowest ranked females from each classroom were selected for inclusion in the study. This selection procedure resulted in a sample of 36 children (18 males and 18 females).

Sociometric rating scale. A roster and rating sociometric scale developed by Roistacher (1974) and subsequently adapted for use with elementary school children (e.g., Singleton & Asher, 1977; Oden & Asher, 1977; Hymel & Asher, 1977) was used to assess children's peer acceptance in each classroom. This scale may be described as follows:

> Children are provided with an alphabetized list of all their classmates in which each name is followed by the numbers one through five. Children circle the number which best describes how much they like to play with (or work with) each classmate at school. A rating of five indicates that they "like to a lot" and a rating of one indicates that they "don't like to." A child's score consists of the average rating received from peers. (Hymel & Asher, 1977; p. 3)

The roster and rating scale, unlike most nomination methods, provides an index of peer acceptance based on responses from all classmates, does not force

children to give negative peer evaluations, and has superior reliability among sociometric instruments (Hymel & Asher, 1977).

One week prior to training, the sociometric scale was administered in each classroom in a group format. Children first received instructions on how to use the scale and then rated each classmate in response to the question: "How much do you like to play with this person in school?"

Observational scheme. An observational scheme consisting of six mutually exclusive categories including: (1) questions (asking questions of peers); (2) leads (verbally instructing or directing peers); (3) support (giving praise, encouragement, etc., to peers); (4) social negative (directing hostile, agressive, or rejecting behaviors at peers); (5) social other (all other positive or neutral social behaviors); and (6) non-social (not watching, glancing, touching, or talking to peers); was employed to assess children's behavior in the classroom.

Prior to training, low accepted children in each classroom were observed during a 20 minute free play period on two school days separated by a 2-3 day interval. The classroom teacher introduced each free play session and provided a variety of unstructured play materials (e.g., art supplies, wood crafts, batteries and bulbs, etc.) for the children to use. Observations were conducted with an instantaneous (scan) sampling procedure (Altmann, 1974). Observers were trained to focus briefly (1-2 seconds) on a target child and immediately record his or her behavior, then focus on a second target child and immediately record his or her behavior, etc., until all of the target children were observed. Once this "cycle" was completed, a second was started, etc., until the assessment was terminated at the end of each free play period. Observers were provided with an observational grid comprised of a randomly ordered list of names and spaces to record the data for each cycle.

Behavioral observations were conducted by two trained female observers who remained blind to the purpose of the study and the children's experimental status throughout the study. To obtain a measure of interrater reliability, the observers conducted concurrent observations on a child by child basis for 5 minute periods at the beginning and end of each free play session (33% of each observational interval). For the balance of each free play period, the observers employed different random lists and worked independently.

Prior to conducting the assessment, the observers visited each classroom on two occasions to learn names and allow the children to become accustomed to the observers' presence. Teachers informed the children that the observers were interested in learning about how children play and have fun together in school. Observers were trained to gather data from several locations in the classroom and execute movements in an unobtrusive manner so as to avoid interfering with the children's activities.

Design

A 3x3 factorial design consisting of three groups (verbal skills training condition, attention control condition, and non-treatment control condition), and three periods of assessment (pretraining, posttraining, and followup) was used to determine the effects of a verbal social skills training procedure on low-accepted children's social behaviors and peer status.

All three experimental conditions were implemented at each of three elementary schools. Within a given school, an equal number of target children were drawn from each of two randomly selected third grade classrooms. Six target children from each classroom were assigned to the experimental conditions with the constraint that each group contain an equal number of males and females. As described above, this stratified random sampling procedure resulted in four children per condition (one male and one female from each of the two classrooms)

within each school. Thus, by summing across all three schools a total of 12 children per experimental condition was obtained.

Procedure

The author served as the experimenter in the present investigation. To prevent children from associating the experimenter's presence with that of the observers or the administrator of the sociometric scale, the experimenter was not involved in any of the target classrooms prior to inception of the experimental conditions. A few days prior to implementing the experimental conditions, the experimenter introduced himself as someone interested in children's games.

Verbal skills training condition. Children assigned to this condition participated in an intervention procedure designed to train the following verbal social skills: (1) asking positive questions of peers; (2) offering useful suggestions or directions to peers; and (3) offering supportive statements to peers. It should be noted that these skills correspond with three of the categories employed in the observational scheme, permitting an assessment of trained as well as untrained social behaviors.

Children in this condition were trained in dyads consisting of one same sex child from each of the two experimental classrooms within a given school. The members of each dyad were taken from their respective classrooms to an experimental room where the training was administered. The intervention procedure used to train the three verbal social skills consisted of eight 45-50 minute training sessions conducted on an every-other-day basis during the school week.

1. Asking positive questions. Two training phases were conducted during the first and second sessions to teach question-asking behaviors. The first phase focused on coaching a concept of the social skill. Each member of the dyad: (1) received verbal instructions about question asking behaviors; (2) suggested specific behavioral referents and interpersonal consequences for

the skill; and (3) received evaluative feedback regarding the appropriateness of the suggested examples. Guided rehearsal of the social skill was conducted during the second training phase. The experimenter first instructed both members of the dyad to try out the skill in a brief play session and then provided informative feedback contingent on the children's attempts to enact the skill during play. An example of the basic training script and children's responses is provided below:

INSTRUCTOR: To begin, I like to talk with you about an idea that might make a game more fun to play and help you get to know each other while you are playing. One way you can make a game fun and get to know other kids is to ask questions that are positive. Okay, (child's name), if you were playing a game with some kids what is a way that you might ask a question that's positive?

CHILD: How do you play this game?

INSTRUCTOR: Good, that's a positive question. Now, what do you think another person might say or do if you said that?

CHILD: Probably tell me the rules ... give some directions.

INSTRUCTOR: Yes, something like that might happen. Okay, now, what would be an example of a question that isn't positive?

CHILD: Ahh .... Can't you do anything right?

INSTRUCTOR: Yes, that would be a question that isn't positive. What do you think another person might say or do if you said that?

CHILD: They'd probably get mad ... maybe tell you to get lost.

INSTRUCTOR: Yes, I guess something like that could happen .... (After completing this procedure with each child) ... Okay, now let's try to play this game together. We will begin by .... While we play this game I would like you to try out asking questions that are positive. ... (As the children play) How could I find out if (child's name) likes this game? Show me how you'd do it. ... (child's name), what is a question you have about this game? ... (etc.).

CHILD: Do you think this is a fun game?

PEER: Yeah, kinda. How 'bout you?

INSTRUCTOR: Good (children's names), those are positive questions.

2. Offering useful suggestions or directions. During the third and fourth training periods, children were trained to offer useful suggestions and/or directions to peers. The training procedure utilized in each of these training sessions was essentially the same as described for question-asking behaviors.

3. Offering supportive statements. This same procedure (i.e., two phases in which a concept of the skill is coached followed by an opportunity for guided practice) was also utilized in the fifth and sixth training periods to train supportive statement behaviors.

4. Transfer training. Transfer training was the objective during the seventh and eighth training sessions. Specifically, children were trained to: (1) recall the previously trained social skills; (2) initiate them independently in a game situation with peers; and (3) self-evaluate the consequences of these skills in terms of peers' responses. Three training phases corresponding to the above listed objectives were employed during each of these training sessions. For example, during the first phase the experimenter first asked each member of the dyad to name the three previously trained social skills and then offered feedback contingent on the child's statements (e.g., offered verbal approval for remembered skills, restated forgotten concepts, etc.). The second phase provided children with an opportunity for self-directed practice of these skills among peers. First, the experimenter instructed the members of the dyad to try out all three verbal social skills in a subsequent play session with peers. Following this, the experimenter randomly selected two peers (from a pool of classmates not assigned to an experimental condition), one from each target classroom in the school, to participate in a play session with the trained dyad. After all four children were present in the experimental room, the experimenter provided a table game for the group to play and observed each target child for three 1-minute intervals to record verbalizations judged to be exemplars of each verbal social skill. When the game was finished, the two untrained peers returned to their respective classrooms. In the third phase, the experimenter met individually with the target c[illegible]en and trained them to self-evaluate their self-directed performance during the preceding play session. While conducting this "brief discussion," the experimenter provided informative feedback regarding the child's self-directed performance with peers, asked the child to describe the responses of peers to the enacted social skills, and then offered evaluative feedback contingent on the child's remarks. Next,

the experimenter helped the target child problem solve specific outcomes, depending on the type of peer consequence reported. For example, if a negative consequence was reported, the child was instructed to describe how the skill might be adapted in order to achieve a positive outcome. Finally, the experimenter reviewed unrehearsed verbal skills and encouraged the child to employ these skills on subsequent occasions. A partial script of the self-evaluation procedure is described below:

INSTRUCTOR: Today when I was watching everyone play I noticed that you asked positive questions. For example, you said ... (examples cited). Do you know what happened when you asked questions that were positive? Can you remember how it worked out?
CHILD: Yeah, no one answered me ... it didn't work.
INSTRUCTOR: Oh, I see, so what happened was .... (summarizes consequence). Well what might be another way to ask a positive question so that things might work out better next time?
CHILD: Ahh .... Wait till another kid isn't busy and ask it again.
INSTRUCTOR: Yes, perhaps that might work. Why don't you try it next time?

Attention control condition. Children in this condition were separated from their classrooms, grouped by same-sex dyads, and given a total of eight sessions (on alternating school days) in which a similar type and amount of experimenter attention and interactive experience with peers was provided.

During the first six sessions, the experimenter instructed the dyads about how to play the games which were utilized in the corresponding sessions of the training condition and provided a practice session during which the members of the dyad played the games. In each of the final two sessions, the experimenter asked the children to recall their activities during the preceding sessions and then summoned a randomly selected peer (from a pool of classmates not assigned to an experimental condition) from each target classroom to particiate in a play session with the dyad. After all four children were in attendance, the experimenter provided a table game for the children to play independently. Prior to the close of the session, the experimenter dismissed the recently summoned peers and then held a "brief discussion" with each member of the dyad.

In the course of this discussion, each child was asked to describe what she or he had learned while playing with peers in the preceding sessions.

Non-treatment control condition. Children assigned to this condition were not separated from their classrooms, and did not receive any form of training.

Posttraining Assessment and Followup

Three days after the completion of the experimental conditions the target children were observed for a total of two free play sessions. These sessions were 30 minutes in length and separated by a 2-3 day interval. The observational scheme employed was identical to that used during pretraining assessment. An estimate of interrater reliability was obtained for each of the 12 free play periods conducted during each of the three times of assessment (pretest, posttest, and followup). Observer agreement on the six behavioral categories for each of the 2 free play periods at pretest ranged from 75% to 97%, with a median estimate of 87%. For the 2 free play periods at posttest, observer agreement ranged from 80% to 94%, with a median estimate of 83%. Similarly, at followup observer agreement ranged from 83% to 100%, with a median estimate of 88%. In addition, 2-3 days after the observational assessment was completed, the roster and rating sociometric scale was readministered in each of the experimental classrooms. Posttraining assessment was conducted by the same examiners employed during the preassessment period. As before, children were advised that these individuals were interested in learning about how children play and have fun together at school.

Observational and sociometric assessments were also conducted 4 weeks after completion of the posttraining assessment using a timetable similar to that employed at pre- and posttraining.

Results

Overview of the Analyses

The sociometric and observational data were first examined with correlational analyses in order to determine the reliability and interrelationship among the dependent measures. Next, preliminary analyses were performed on the data to investigate whether children in the three experimental conditions differed significantly on the dependent measures at pretest. Analyses of variance were then applied to the data to assess differences between the verbal skills training, attention-control, and non-treatment control groups from pre- to posttraining and at followup.

Reliability and Intercorrelation of the Dependent Measures

Behavioral measures. Six behavioral scores were obtained for each child in the three experimental conditions at each time of assessment (i.e., pre, post, and followup). These scores corresponded to the six behavioral categories employed in the observational scheme: questions, leads, support, social-other, social-negative, and non-social. Each score was computed by summing the total number of behaviors observed per category per child across both of the data collection periods for each time of assessment.

Preliminary analyses indicated that two measures, support and social-negative, had near zero means at each time of assessment. As a result, these two measures were not included in further data analyses. Correlations between the four remaining measures (i.e., questions, leads, social-other, and non-social) were calculated to assess the degree of interrelationship among these measures for the participating children. Negative correlations ranging from -.25 to -.91 were obtained between measures of children's social behavior (i.e., questions, leads, social-other) and the non-social measure.

Given the present observational scheme, children who spend the greatest percent of time in social interactions with peers must, by definition, spend a lesser amount of time engaging in non-social behaviors. In addition, all three measures of social behavior were relatively uncorrelated at the time of pretesting (r ranged from -.08 to .13). Low to moderately positive correlations, ranging from -.12 to .32, were obtained between the social-other and the questions and leads measures at posttest and followup. Correlations between the questions and leads measures became positive and increased in magnitude across the three assessment intervals (r = -.08, .50, and .69 respectively), indicating that these measures became increasingly interrelated over the course of the study.

Intraclass correlational analyses were used to obtain an estimate of the reliability of the observational measures. These analyses are based on data from the non-treatment control group (i.e., children in each classroom who were observed but did not participate in the study) because this data provided a basis for assessing the measures without including possible experimental effects. Due to the procedure used to select children for inclusion in the study, the scores for the questions and leads measures were not distributed. Since the magnitude of a correlation coefficient is a function of the variability within measures, it was decided to create a single "social" measure with a better distribution of scores by pooling the questions, leads, and social-other scores for each child. This resulted in two measures, social and non-social, to be used for the purpose of estimating reliability. Intraclass correlation coefficients, based on children's scores across the three times of measurement were .51 and .58 for the social and non-social measures respectively.

Sociometric measure. The play ratings children received from all classmates on the roster and rating sociometric scale were averaged resulting in a pre-training, posttraining, and followup means for each child. Correlational analyses were performed on the sociometric data from the six participating classrooms in order to estimate the reliability of the sociometric measure from pre- to posttraining and from pretraining to followup. The sociometric data for children participating in the two treatment conditions (i.e., verbal skills training condition, attention-control condition) were excluded from these analyses so as not to include possible experimental effects in the reliability estimate. As a result, the sample sizes used in these analyses ranged from 11 to 21. Significant correlations were obtained for all classrooms over the assessment intervals. The median correlation for the six classes was .86, $p<.01$, from pretest to posttest, and .89, $p<.01$, from pretest to followup. Children's scores tended to be stable over time indicating that the sociometric measure was quite reliable. These findings were highly similar to those reported in previous investigations (e.g., Oden & Asher, 1977; Singleton & Asher, 1977).

Preliminary Analyses

Due to practical constraints (i.e., the physical distance between schools), it was not possible to select from the total group of children identified in all three schools when randomly assigning subjects to the experimental conditions. Rather, assignment was made within schools so that an equal number of children from each school were randomly assigned to one of the three experimental conditions. Consequently, it was of initial interest to determine if the resulting groups of children resembled samples drawn from the same population with respect to schools and other factors of interest (i.e., experimental groups, sex.). The question of equivalence among groups at pretest was addressed by determining

whether or not children varied significantly on these factors in relation to the dependent measures.

A 3x3x2 (condition x school x sex) multivariate factorial analysis of variance, with Wilks's λ criterion, was applied to the behavioral data obtained at pretest. Specifically, the multivariate procedure was utilized to determine whether or not the overall pattern or profile of the four behavioral measures differed significantly at pretest relative to each factor or interaction(s) of these factors. The main effects for conditon, $F(10,28)=.73$, school, $F(10,28)=.95$, and sex, $F(5,14)=1.30$, were non-significant as were all interaction effects.

Although sensitive to differences in variable profiles, the multivariate procedure employed may obscure small but significant individual variable differences. Therefore, separate univariate tests were also conducted on each of the four behavioral measures. The results of these analyses, also indicated no significant main or interaction effects.

Children's pretest sociometric scores were analyzed with a 3x3x2 (condition x school x sex) analysis of variance. The main effects of condition, $F(2,18)=.27$, school, $F(2,18)=1.89$, and sex, $F(1.18)=.01$, were not significant. Significant interaction effects were also absent.

In summary, the results of the analyses at pretest indicate that children did not differ significantly with respect to condition, school, or sex on the behavioral or sociometric measures at pretest. Additional analyses supported the conclusion that children from different schools did not respond differentially to the experimental conditions over time. Consequently, the data were pooled across schools for further analyses.

Behavioral Assessment

Behavior data for all children in the three experimental conditions included the total number of questions, leads, social-other, and non-social

behaviors observed at each time of assessment. The means and standard deviations for behavioral measures for the verbal skills training, attention-control, and non-treatment control groups at the three assessment intervals are presented in Table 1.

A 3x2x3 (condition x sex x time) multivariate analysis of variance was employed to assess profile differences on the four behavioral measures relative to each factor of interest. The main effects of condition, $F(8,54)=5.73$, $p<.01$, time, $F(8,23)=4.76$, $p<.01$, as well as the condition x time interaction $F(16,46)=4.34$, $p<.01$, were significant. Consequently, it was of interest to examine individual variable differences contributing to these effects. Data obtained for each of the behavioral measures were treated separately with 3x2x3 (condition x sex x time) analyses of variance for two between- and one within-subjects factors.

The analysis of variance applied to children's question behaviors resulted in a significant main effect for condition, $F(2,30)=13.36$, $p<.01$, time, $F(2,60)=5.67$, $p<.01$, and a significant condition x time interaction $F(4,60)=11.08$, $p<.01$. Given the purpose and design of the present investigation, the significant main effects, or differences obtained by averaging over the levels of condition or time, were not of interest. However, for the same reasons, the significant condition x time interaction was of primary interest. As predicted, the percent of time children in the verbal skills training condition engaged in question-asking behaviors increased at posttest and followup whereas control group children remained the same or declined (see Figure 2). Tests on simple main effects (Winer, 1971) were employed to assess variation due to time at each level of condition. These analyses indicated a significant time effect, $F(2,66)=19.12$, $p<.01$, for the verbal skills training condition. Non-significant time effects were obtained for the attention-control, $F(2,66)=.30$,

and non-treatment control, $F(2,66)=1.01$, conditions. A Newman-Keuls analysis indicated that relative to pretest, the mean levels of question-asking behavior for the verbal skills training group were significantly ($p<.01$) higher at posttest and followup. The difference between posttest and followup levels was not significant.

Similar findings were obtained for the analysis of variance on children's leading behaviors. The main effects of condition, $F(2,30)=18.76$, $p<.01$, time, $F(2,60)=6.84$, $p<.01$, and the condition x time interaction, $F(4,60)=10.67$, $p<.01$, were significant. As predicted, leading behavior increased for children in the verbal skills training condition whereas control group children remained the same or declined (see Figure 3). The simple main effect of time was significant for the verbal skills training condition $F(2,66)=73.83$, $p<.01$, but not for the attention-control, $F(2,66)=.40$, or non-treatment control, $F(2,66)=.58$ conditions. A Newman-Keuls analysis indicated that the mean levels of leading behavior at posttest and followup were significantly ($p<.01$) higher that the mean level observed at pretest for the verbal skills training group. Posttest and followup levels did not differ significantly.

The behaviors children displayed which were classified as "social-other" (i.e., untrained positive or neutral social behaviors) were analyzed in the same manner. No significant main effects or interactions were found, however, the condition x time interaction approached significance $F(4,60)=2.33$, $p<.07$. An examination of the group means presented in Table 1 indicates that the percent of time children in the training and attention-control groups engaged in untrained positive or neutral social behaviors tended to increase from pretest to posttest and at followup.

The analysis of variance performed on children's scores for non-social behaviors found significant main effects for condition, $F(2.30)=13.48$, $p<.01$,

time, $F(2,60)=9.89$, $p<.01$, and a significant condition x time interaction, $F(4,60)=9.39$, $p<.01$. As anticipated, the percent of time the trained children engaged in non-social behaviors declined from pretest to posttest and at followup. In comparison, children in the control groups evidenced little or no change in these behaviors (see Figure 4). Tests of simple main effects indicated that differences due to time were significant for the verbal skills training condition, $F(2,66)=23.54$, $p<.01$, but non-significant for the attention-control, $F(2,66)=4.16$, and non-treatment control, $F(2,66)=.58$, conditions. A Newman-Keuls analysis revealed that the mean posttest and followup levels of non-social behavior for the verbal skills training group were significantly ($p<.01$) lower than pretest levels. The difference between posttest and follow-up levels was non-significant.

Sociometric Assessment

Children in each of the experimental conditions received an average play-rating score at pretraining, posttraining, and followup, based on the ratings given by classmates on the roster-and-rating sociometric scale. Means and standard deviations on the sociometric measure for the verbal skills training, attention-control, and non-treatment control groups are reported for each assessment interval in Table 2. A 3x2x3 (condition x sex x time) analysis of variance was performed on these data. The main effects of condition, $F(2.30)=5.44$, $p<.01$, time, $F(2,60)=37.12$, $p<.01$, and the condition x time interaction $F(4,60)=16.84$, $p<.01$, were significant. As can be seen in Figure 5, the training group increased in sociometric status across the assessment intervals, the attention-control group gained and then declined, and the non-treatment control group remained relatively unchanged. Tests of simple effects for time were significant for the verbal skills training condition, $F(2,66)=65.60$, p .01, as well as the attention control condition, $F(2,66)=11.00$,

$p<.01$. A non-significant time effect was obtained for the non-treatment control condition, $F(2,66)=.20$. A Newman-Keuls analysis indicated that the posttest and followup sociometric means were significantly higher than the pretest mean for the training group. Furthermore, the followup sociometric mean was significantly higher than the posttest mean. In comparison, the change in mean sociometric ratings over time differed for the attention-control group. A Newman-Keuls analysis for this group revealed that the post-test sociometric mean was significantly higher than the pretest mean. By followup, however, the group's sociometric mean was significantly lower than posttest level.

Discussion

The obtained results provide clear evidence regarding the effectiveness of this training method for enhancing children's verbal social skills in classroom situations with peers. The results also support the prediction that increased use of the trained verbal skills among peers leads to greater peer acceptance. As implemented, the present training procedure significantly increased the percent of time children engaged in two of the three trained verbal skills. Furthermore, this improvement was still observable 4 weeks after training. Children also evidenced significant gains in peer acceptance immediately after training and again 4 weeks following their participation in the training. These findings pertain to both boys and girls.

Contrary to expectations, the observed instances of supportive statement behaviors remained near zero for all groups over the course of the investigation. Apparently, the intervention procedure did not produce measurable effects with this verbal skill. Perhaps children in this age group value supportive verbal behaviors but employ them sparingly in peer interactions. This finding, or

lack of one, may also be a function of the system for coding children's supportive behaviors. Perhaps this behavioral category was too narrowly defined and excluded the types of supportive behaviors which typify children's social interactions.

The overall impact of this training procedure on children's verbal social skills and peer acceptance provides additional empirical support for a social learning explanation of behavior change. The outcomes of the present study parallel those of previous investigations which have documented the effectiveness of a social learning model for training a variety of social skills. Not suprisingly, this investigation replicated, in part, the findings of Oden and Asher (1977). Specifically, data from both studies support the conclusion that skill training has a beneficial and lasting effect on children's peer acceptance in the classroom. However, the present training method also produced significant increases in the levels of two trained social behaviors, and gains in skilled behaviors were paralleled by a significant decline in non-social behaviors. As compared with the Oden and Asher procedure, the greater impact of the present training method on behavior may be partly due to the inclusion of rehearsal and self evaluation procedures in which children were trained to become proficient at skill performance among peers and assess the effects of their skill performance on peer behavior.

In relation to the behavioral findings, it should also be stressed that the verbal skills children learned in the training sessions transferred to situations involving peer interactions in the classroom. Skill transfer may have been facilitated by the rehearsal contexts employed within the training procedure. As the training progressed, rehearsal contexts were varied sequentially so as to approximate peer group situations similar to those experienced in the classroom environment. For example, during the

guided rehearsal segments children practiced each skill in game situations with one other child. Then, children advanced to self-directed rehearsals in which they practiced the skills while playing a variety of games with a group of peers. The success of "fading in" techniques for producing behavior transfer has been documented elsewhere (e.g., Jackson & Wallace, 1974; Koegel & Rincover, 1974).

The present investigation also provides clear evidence that the lasting gains achieved by the trained child in verbal skills and peer acceptance can not be attributed to the effects of experimental intervention (i.e., experimenter attention, separation from the classroom, etc.), or "peer pairing." However, pilot data and previous research on peer pairing (e.g., Rucker & Vincenzo, 1970; Lilly, 1974) led to the prediction that children in the attention-control condition would evidence temporary gains in untrained positive or neutral social behaviors and peer acceptance. Although trends in the data were found to support the predicted behavioral changes, only the hypothesized effects for peer acceptance were confirmed.

As expected, the absence of any form of intervention was associated with little or no change on behavioral or sociometric measures. Apparently, as has been suggested elsewhere (Oden & Asher, 1977), social isolation or rejection at these ages is a relatively stable characteristic.

The present research also provided evidence concerning the relationship between specific social skills and the development of children's peer acceptance. As documented in previous research, the verbal social skills selected for training were correlates of peer status or referenced with peer group norms or preferences. It was hypothesized that enhancement of these verbal social skills would lead to greater acceptance from peers. This prediction was based on the assumption that skillful social behavior is a determinant of children's

peer acceptance; a causal tenet which could not be supported by previous correlational studies. In the present investigation, however, training normative or valued verbal skills resulted in greater peer acceptance, a finding which supports the conclusion that the development of peer acceptance is partly a function of skillful verbal behaviors.

Additional information about the relationship between behavior and attitude change is revealed by the assessment intervals in which both types of effects were noted. The effects of the intervention on children's verbal skills were evidenced immediately following the completion of the training procedure and also 4 weeks hence. Although significant change in peer's attitudes toward the trained children was evidenced immediately following the intervention the greatest change was apparent 4 weeks later. These findings provide tenative support for the conclusion that changes in peer attitudes are partly a function of sufficient exposure to behavioral change.

Further research is needed to assess the relative contributions of specific training components to the obtained treatment outcomes. At the very least, the hypothesized effects of each training component should be validated.

In addition, research is needed to evaluate variations in each training component with differing age groups. For instance, research implications advanced by Hartup and Coates (1972) imply that children's ability to abstract rules or concepts from modeled instructions increases with development. If this is the case, then verbal rather than modeled instruction may be the more effective method for teaching general rules or concepts about social behavior to young children.

Clarification of the relationship between behavior change and peer attitudes is also needed. In particular, it is not yet clear how changes

in children's verbal social skills influence the formation of peer attitudes. Future studies might employ interview methodology as a means of learning about how trained children are perceived by their classmates. Perhaps as children become more skilled, peers may perceive them as more interesting playmates. Or, perhaps as children develop social skills they become better known or more familiar to peers.

Selection and evaluation criteria should be important considerations in future social skill training studies with children. Although there is general consensus in the literature about the need for effective intervention methods, agreement is lacking on issues such as selection of subjects and assessment of improvement.

As exemplified in the present investigation, sociometric and observational measures can be used in tandem to generate more specific selection and evaluation information. For selection purposes, the scores obtained on each measure can be coded as dichotomous variables with the levels "high" and "low." Potential trainees include children receiving low scores on both measures or children receiving a low sociometric score and a high behavioral interaction score (assuming that candidates for training do not include well-liked children). The former category represents children whose peer relations are characterized by interpersonal constraints (i.e., peer neglect or rejection) and infrequent use of social skills. The latter category describes children who interact frequently with peers but are not well liked (e.g., children who often behave in an inappropriate or aversive manner toward peers). The information obtained from both measures at the time of selection may identify two different types of interpersonal difficulties, which, in turn, may require two different forms of intervention (e.g., acquisition or enhancement of social skills versus modification or elimination of social responses; see McFall, 1976).

Similarly, the use of both measures provides greater evaluative information. Specifically, information from behavioral measures can be used to assess whether or not trained social skills have been acquired and data from sociometric measures can be used to determine if behavior change has resulted in greater peer acceptance.

Finally, future training studies should incorporate criteria which reflect other important training variables. To date, no study has examined whether or not participants see themselves as benefiting from a training experience. Self-perceived gains may be a critical factor in the maintenance of social behaviors. Criteria for assessing children's social knowledge should also be developed. Children who lack awareness of peer norms and values for social behavior may risk peer rejection by behaving inappropriately in social situations (Ladd & Oden, in press). Measures of this type would undoubtedly be an added and valuable dimension in the selection and evaluation of low-skilled children.

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Table 1

Means and Standard Deviations for Behavioral Measures for the Three Experimental Groups at Pretest, Posttest, and Followup

Time of Assessment	Behavioral Measure	Experimental Groups		
		Verbal Skills Training	Attention-Control	Non-Treatment Control
Pre:				
	Questions	.92 (1.24)*	1.00 (.95)	1.00 (.60)
	Leads	2.08 (1.08)	2.25 (1.85)	2.33 (1.67)
	Social Other	7.75 (3.93)	6.08 (3.92)	8.50 (4.06)
	Non-social	23.75 (5.59)	25.17 (5.15)	23.00 (4.26)
Post:				
	Questions	4.00 (2.80)	.67 (.65)	.50 (.80)
	Leads	6.25 (3.02)	2.25 (2.09)	2.17 (1.70)
	Social Other	9.17 (2.33)	7.00 (3.36)	7.42 (3.23)
	Non-social	15.16 (4.14)	24.50 (4.12)	24.33 (4.31)
Followup:				
	Questions	3.33 (1.83)	.75 (.97)	1.08 (.79)
	Leads	6.17 (2.21)	1.75 (1.23)	1.67 (1.30)
	Social Other	9.50 (4.08)	10.08 (4.38)	7.25 (3.52)
	Non-social	15.00 (3.19)	21.33 (5.05)	24.92 (3.92)

* Standard deviations are in parentheses

Table 2

Means and Standard Deviations for the Sociometric Measure for the Three Experimental Groups at Pretest, Posttest, and Followup

Time of Assessment	Experimental Groups		
	Verbal Skills Training	Attention-Control	Non-Treatment Control
Pre	2.49 (.32)*	2.39 (.43)	2.49 (.40)
Post	3.28 (.45)	2.79 (.77)	2.55 (.38)
Followup	3.48 (.42)	2.55 (.64)	2.53 (.35)

* Standard deviations are in parentheses

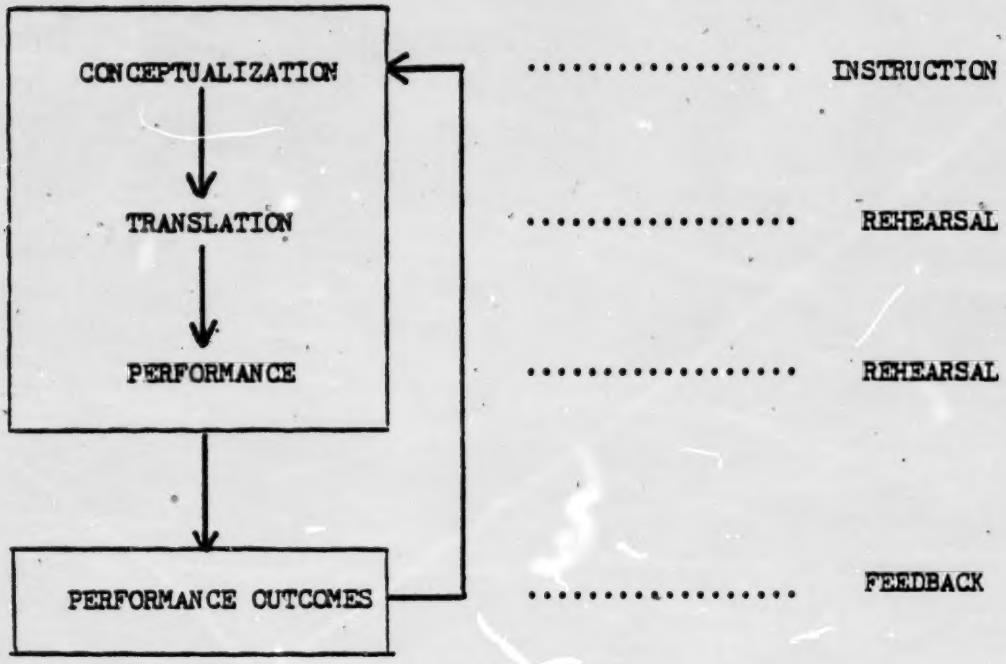

Fig. 1.-Social learning model of behavior change and corresponding training components.

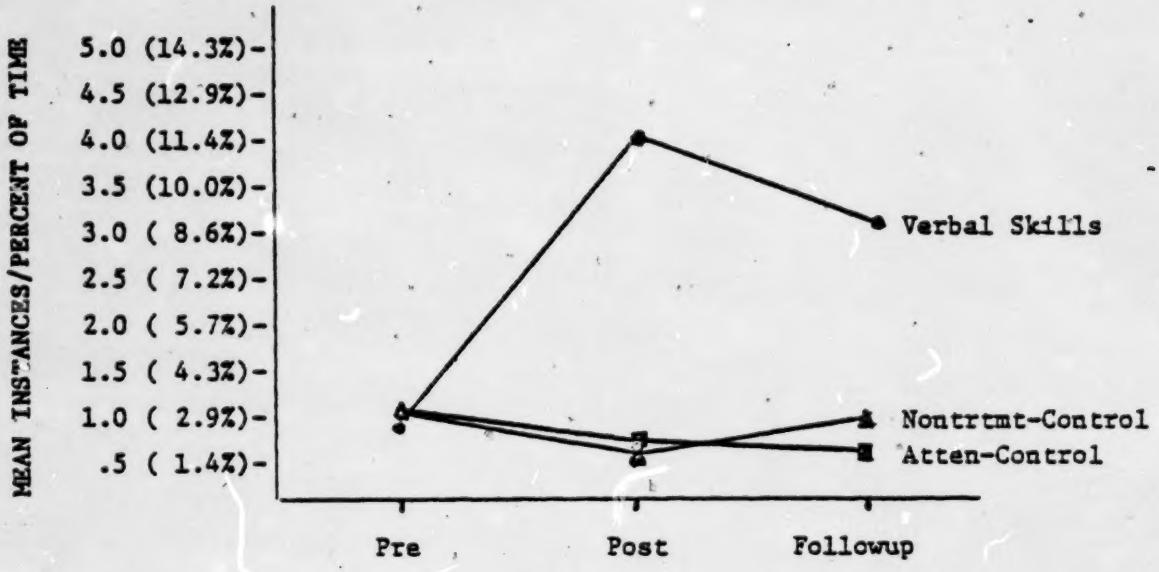

Fig. 2.- Mean number of instances/percent of time engaging in question behaviors for groups across time.

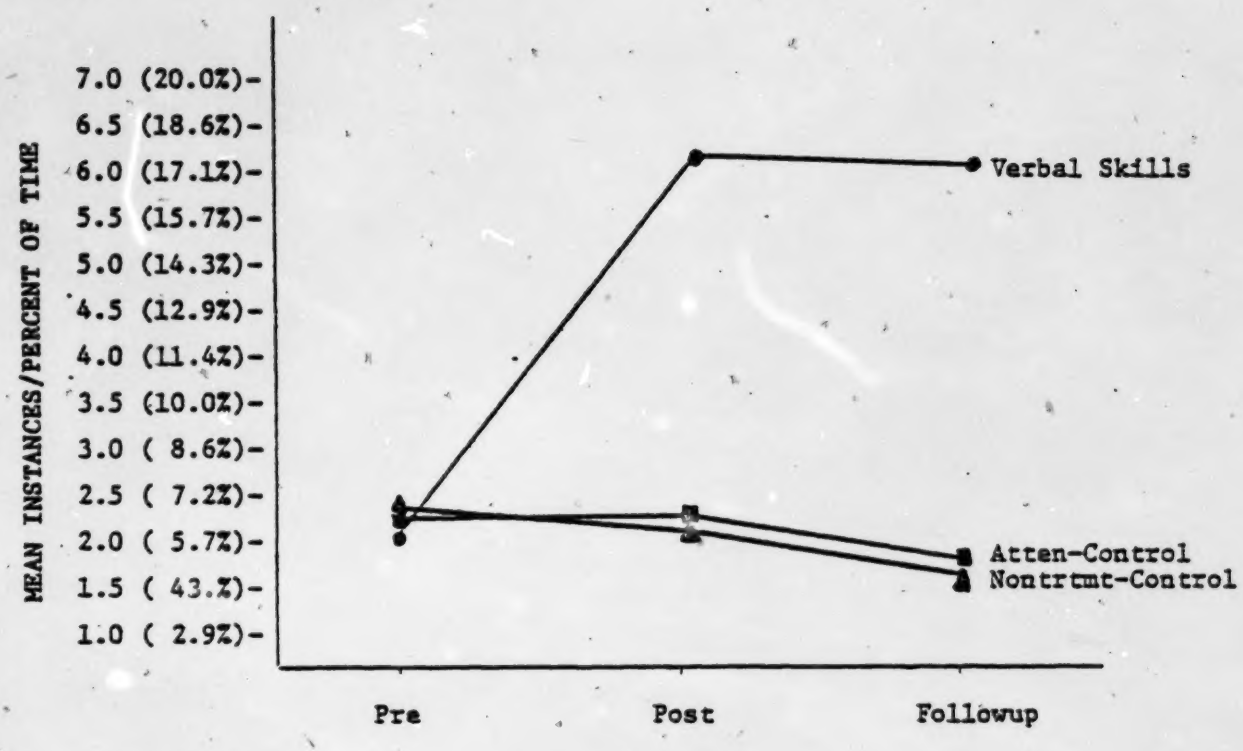

Fig. 3.- Mean number of instances/percent of time engaging in leading behaviors for groups across time.

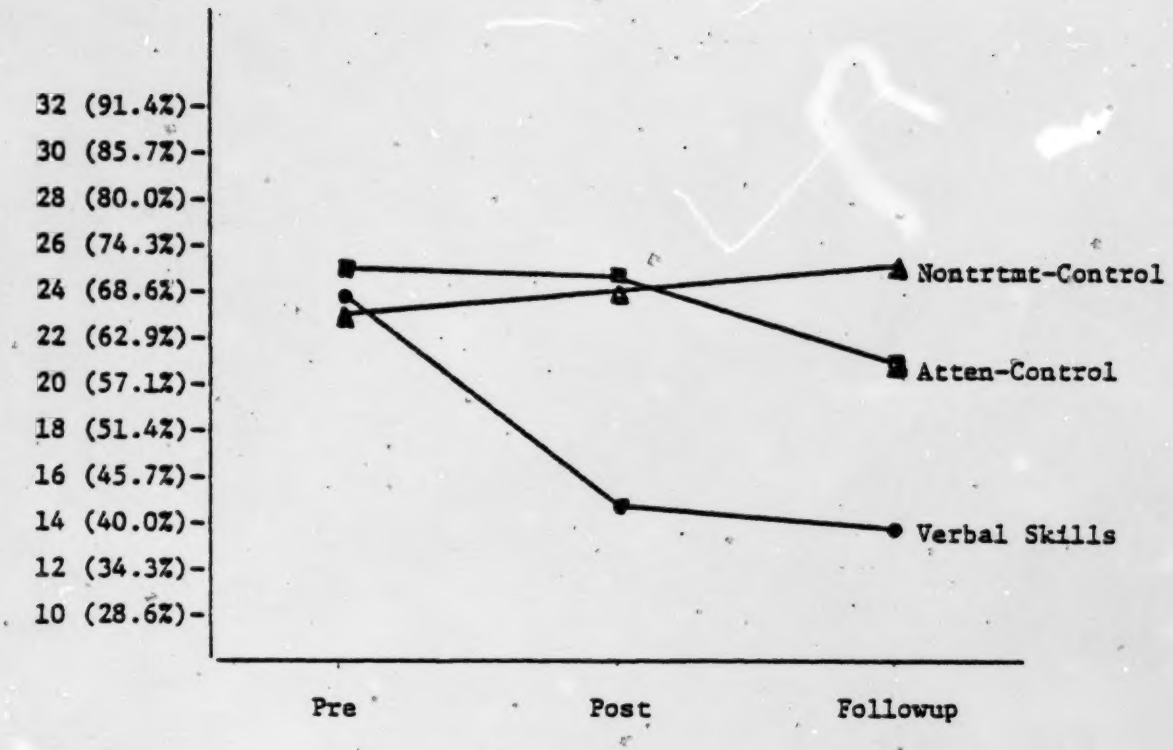

Fig. 4.- Mean number of instances/percent of time engaging in non-social behaviors for groups across time.

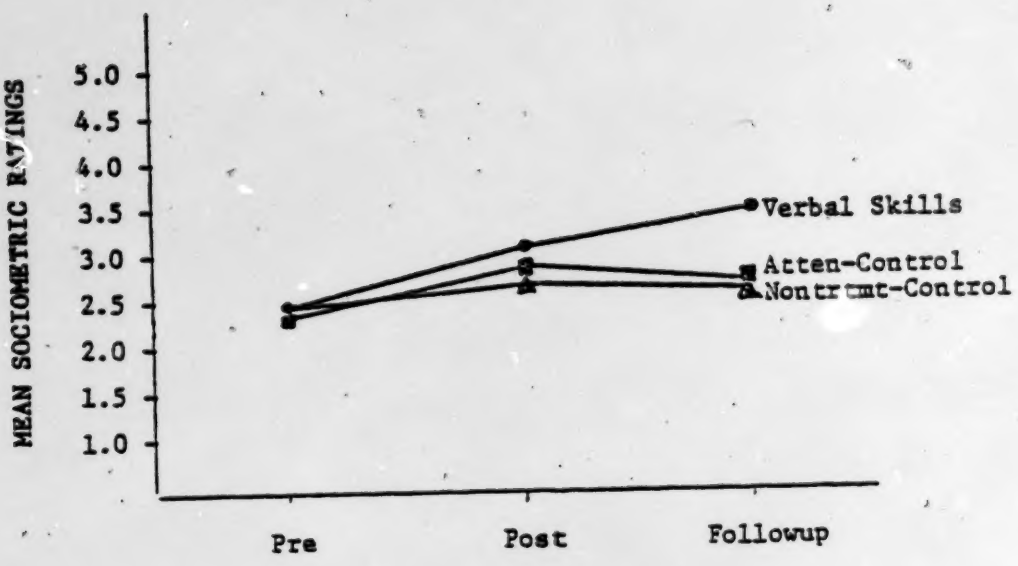

Fig. 5.- Mean sociometric play ratings for groups across time.